

REMARKS

Claims 1-10 are currently pending.

Claims 1-5 have been amended for clarity.

Claims 9-10 are newly entered claims.

Reconsideration in light of the following is respectfully requested.

Claim Rejections – 35 USC § 103

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. in view of either Pappis et al. or Ishii et al.

Kawasaki et al. is cited as disclosing a process for manufacturing boron nitride using a push furnace. The Office opines that the difference between the process disclosed by Kawasaki et al. and the recited claims is that Kawasaki et al. does not disclose that a graphite container should be used for the reaction mixture. The Office fails to consider other teachings within Kawasaki et al. which distinguish the teachings from the recited claims.

Kawasaki et al. teaches the initial formation of a melamine borate which is then heated at a temperature of 1700-2200°C to form boron nitride. In col. 8 lines 39-41, Kawasaki et al. clearly states that firing at less than 1700°C causes the hexagonal boron nitride (hBN) to have low crystallinity. By contrast, the present invention utilizes two heating steps with the first being to uniformly heat the reaction mixture and maintain at or below 1000°C.

Pappis et al. and Ishii et al. are independently relied on for teaching the use of a graphite vessel. Pappis et al. specifically recites heating at 1200-2300°C at a reduced pressure of less than

about 100 torr in a closed container made of a variety of materials including graphite, boron nitride, tungsten, molybdenum, tantalum, alumina, magnesia, zirconia, etc. One of skill in the art would have no basis for specifically selecting graphite even in hindsight. Even then, one would have no reason to consult Pappis et al. since Kawasaki et al. teaches a reaction at 1 atm. in flowing nitrogen and there is no discussion of any specificity in the crucible design.

Even if one of skill in the art did combine Pappis et al. and Kawasaki et al. they would not arrive at the instant invention. Kawasaki et al. teaches a flowing atmosphere with a temperature above 1700°C and Pappis et al. teaches a sealed container at a temperature of 1200-2300°C. Therefore, even in hindsight, one of skill in the art would have no basis for an initial step including heating uniformly and holding at or below 1000°C.

Ishii et al. is not adaptable to a flow-through furnace since the reaction product is isolated on the crucible wall or the furnace. If a flow-through furnace were incorporated it would have to be dismantled to recover the reaction product which is highly undesirable. Furthermore, Ishii et al. states that below 1200°C the vaporization of the boron oxide is too slow. This teaching along with the complementary teaching of Kawasaki et al. would lead one to avoid the initial heating step at below 1000°C since there would be no realized advantage and no appreciable reaction.

In summary, Kawasaki et al. and Pappis et al. are incompatible because Kawasaki et al. relies on a flowing atmosphere whereas Pappis et al. relies on a sealed container. The Office only relies on Pappis et al. for its teachings related to a graphite container without regard for the teachings against the initial heating step of the instant claims. Kawasaki et al. and Ishii et al. are incompatible since Ishii et al. is not convertible to a push furnace system and the expectation

would be minimal, or no, reaction product. Ishii et al. is relied on for teaching a graphite crucible without regard for the teachings against the initial heating step of the instant claims.

For, at least, the reasons set forth herein the rejection of claims 1-8 under 35 U.S.C. 103(a) as being unpatentable over Kawasaki et al. in view of either Pappis et al. or Ishii et al. is traversed. Notice thereof is respectfully requested.

Claim Rejections – 35 USC § 112

Claims 2-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. The rejection is rendered moot by amendment.

Newly Entered Claims

Claims 9-10 are newly entered claims. Support for the newly entered claims is provided in paragraphs [0025] and [0026] of the specification.

CONCLUSIONS

Claims 1-10 are pending in the present application. All claims are believed to be patentable and notice thereof is respectfully solicited.

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Respectfully submitted,



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